REMARKS

By this amendment, claims 1 and 7 have been amended and claims 25-39 have been added. No claim has been cancelled. Accordingly, claims 1-39 are currently pending in the application, of which claims 1, 7, 11, 21, 25 and 32 are independent claims. Applicants appreciate the indication that claims 15-20, 23 and 24 contain allowable subject matter.

In view of the above amendments and the following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending rejections for the reasons discussed below.

Priority Documents

For the purpose of overcoming the effective date of U. S. Patent No. 6,459,465 (i.e., "Lee") filed on December 14, 2001, Applicants submit (a) an English translation of a certified copy of the priority document (i.e., Korean Patent Application No. 2000-25465) filed on May 12, 2000 in Korea, and (b) a statement verifying accuracy of the translation, which are attached hereafter.

New Claims

In this response, claims 25-39 have been newly added, of which claims 25 and 32 are independent, in order to claim the present invention from different perspectives. The support for the new claims can be found in FIG. 1 of the present application and its corresponding descriptive portion of the specification.

Rejections Under 35 U.S.C. §103

Claims 1-3 and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 6,476,890 issued to Funahata, *et al.* ("Funahata") in view of U. S. Patent No. 6,424,402 issued to Kishimoto ("Kishimoto"), further in view of U. S. Patent No. 5,654,780 issued to Hasegawa, *et al.* ("Hasegawa"), further in view of U. S. Patent No. 6,459,465 issued to Lee ("Lee") and further in view of U. S. Patent No. 5,754,263 issued to Akiyama, *et al.* ("Akiyama"). Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, Applicants respectfully submit that the Examiner did not discharge the initial burden of establishing a *prima facie* case of obviousness to deny patentability to the claimed invention under 35 U.S.C. § 103 for lack of the requisite factual basis and/or motivation.

It is well established that the PTO has the initial burden of establishing a *prima facie* cases of obviousness to deny patentability to the claimed invention. *In re Mayne*, 104 F.3d 1339, 41 USPQ 2d 1451 (Fed. Cir. 1997). In rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). Further, MPEP 706.02(j) dictates:

> **"706.02(j) Contents of a 35 U.S.C. 103 Rejection**
>
> 35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it

> with one or more other references. After indicating that the rejection is under 35 U.S.C. 103, *the examiner should set forth in the Office action*:
>
> (A) the relevant teachings of the prior art relied upon, *preferably with reference to the relevant column or page number(s) and line number(s) where appropriate*,
>
> (B) the difference or differences in the claim over the applied reference(s),
>
> (C) *the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter*, and
>
> (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification."

Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, amended claim 1 recites:

> "1. A substrate for a liquid crystal display, comprising:
> an insulating substrate;
> a transparent electrode formed on the insulating substrate;
> a black matrix formed on the transparent electrode; and
> a protrusion formed on the black matrix."

The Examiner admitted "Funahata et al. and Kishimoto combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate" (Office Action, Page 3). Regarding these missing features, the Examiner

asserted "Hasegawa et al. discloses ... where the required black matrix on transparent electrode structure is disclosed". This assertion is respectfully disagreed with.

Hasegawa is directed to performing an orientation treatment for the orientation films 42 formed on the substrates 41 and performing an orientation relaxation treatment for a portion of the orientation films 42 to achieve a wide view angle LCD device. However, Hasegawa does not disclose or suggest "a black matrix formed on a transparent electrode" or "a protrusion formed on the black matrix", as claimed.

Also, the Examiner asserted "Akiyama et al. disclose a liquid crystal panel [for] IPS Mode liquid crystal display ... where the required transparent electrode on insulating substrate structure is disclosed" (Office Action, Page 3). Akiyama may discloses, as shown in FIG. 1(d), "electrodes formed on an ITO film ... on a surface of a transparent glass substrate" (Abstract), Akiyama fails to disclose or suggest "a black matrix formed on the transparent electrode" and "a protrusion formed on the black matrix", as claimed, thereby failing to cure the deficiency from the teachings of Funahata, Kishimoto and Hasegawa.

Since none of the cited reference discloses or suggests the claimed feature of "a black matrix formed on the transparent electrode" and "a protrusion formed on the black matrix", it is submitted that claim 1 is patentable over the cited references. Claims 2, 3 and 6 that are dependent from claim 1 would be also patentable at least for the same reason.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 1-3 and 6.

Claims 4 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Funahata in view of Kishimoto, further in view of U. S. Patent No. 5,414,547 issued to Matsuo,

et al. ("Matsuo"), further in view of Hasegawa, further in view of Lee, and further in view of Akiyama. Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, as previously mentioned, in rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention*. Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, claims 4 and 5 are dependent from claim 1. As previously mentioned, claim 1 is believed to be patentable over Funahata, Kishimoto, Hasegawa and Akiyama. Particularly, none of these references discloses or suggests the claimed feature of "a black matrix formed on the transparent electrode" and "a protrusion formed on the black matrix", as recited in claim 1.

In FIG. 2, Matsuo discloses a black matrix layer 116 (chrome) formed over a pixel electrode 106 (ITO). However, Matsuo fails to disclose or suggest "a protrusion formed on the black matrix", as recited in claim 1. Thus, it is submitted that claim 1 is patentable over Funahata, Kishimoto, Matsuo, Hasegawa and Akiyama. Thus, claims 4 and 5 that are dependent from claim 1 would be also patentable at least for the same reason.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 4 and 5.

Claims 7-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 5,689,318 issued to Matsuyama, *et al.* ("Matsuyama") in view of Akiyama, further in view of Hasegawa, further in view of Lee and further in view of U. S. Patent No. 6,410,214 issued to Kim, *et al.* ("Kim"). Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, as previously mentioned, in rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention*. Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, amended claim 7 recites:

> "7. A method for manufacturing a substrate for a liquid crystal display, comprising the steps of:

forming a transparent electrode on a substrate;
forming a black matrix layer on the transparent electrode;
depositing a photosensitive material on the black matrix layer to form a photosensitive layer;
patterning the photosensitive layer to mask the black matrix layer and to form a protrusion; and
etching the black matrix layer using the patterned photosensitive layer and the protrusion as mask."

In this regard, the Examiner asserted "Matsuyama et al. disclose all the claimed subject matter except they fail to show the etching method" (Office Action, Page 5). However, in Figs. 1, 2, 3, 4, 5, 6(d), 7(e), 8(e), 9(f), 10(a) and 10(b), Matsuyama clearly shows the ITO2 layer formed on the black matrix layer (BM). Thus, Matsuyama does not disclose or suggest "forming a black matrix layer on the transparent electrode". Also, Matsuyama fails to disclose or suggest "depositing a photosensitive material on the black matrix layer to form a photosensitive layer" and "patterning the photosensitive layer to mask the black matrix layer and to form a protrusion".

In this regard, as previously mentioned, Akiyama and Hasegawa also fail to disclose or suggest these missing claimed features from Matsuyama. Kim discloses a method for manufacturing a black matrix for a plasma display panel. As shown in FIG. 3C, in Kim, the black matrix patterns 120 and 120' and the upper electrode patterns 110 and 110' are formed on the same metal oxide film of ZnO. However, Kim fails to disclose or suggest "depositing a photosensitive material on the black matrix layer to form a photosensitive layer" and "patterning the photosensitive layer to mask the black matrix layer and to form a protrusion".

Since none of the cited references discloses or suggests "depositing a photosensitive material on the black matrix layer to form a photosensitive layer" and "patterning the photosensitive layer to mask the black matrix layer and to form a protrusion", it is submitted that

claim 7 is patentable over Matsuyama, Akiyama, Hasegawa and Kim. Claims 8 and 9 that are dependent from claim 7 would be also patentable at least for the same reason.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 7-9.

Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuyama in view of Akiyama, further in view of Matsuo, further in view of Hasegawa, further in view of Lee and further in view of Kim. Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, as previously mentioned, in rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention*. Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, claim 10 is dependent from claim 7. As previously mentioned, claim 7 is patentable over Matsuyama, Akiyama, Hasegawa and Kim. Particularly, none of these references

discloses or suggests "depositing a photosensitive material on the black matrix layer to form a photosensitive layer" and "patterning the photosensitive layer to mask the black matrix layer and to form a protrusion".

In this regard, FIG. 2 of Matsuo shows a black matrix layer 116 (chrome) formed over a pixel electrode 106 (ITO). However, Matsuo fails to disclose or suggest suggests "depositing a photosensitive material on the black matrix layer to form a photosensitive layer" and "patterning the photosensitive layer to mask the black matrix layer and to form a protrusion". Thus, Matsuo fails to cure the deficiency from the teaching of Matsuyama, Akiyama, Hasegawa and Kim. Thus, it is submitted that claim 10 is patentable over Matsuyama, Akiyama, Matsuo, Hasegawa and Kim.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claim 10.

Claim 11 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuo in view of U. S. Patent No. 6,476,882 issued to Sakurai ("Sakurai"), further in view of Hasegawa, further in view of Lee and further in view of Akiyama. Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, as previously mentioned, in rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to*

defeat the patentability of a claimed invention. Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, independent claim 11 recites:

> "11. A liquid crystal display, comprising:
> a first insulating substrate;
> gate lines formed on said first insulating substrate and transmitting scanning signals;
> data lines insulated from and intersecting said gate lines and transmitting image signals;
> pixel electrodes formed in regions defined by intersections of said data lines and said gate lines;
> *redundant data lines formed on a the same layer as said pixel electrodes;*
> switching elements connected to said gate lines, said data lines and said pixel electrodes, said switching elements selectively transmitting the image signals to said pixel electrodes in response to the scanning signals;
> a second insulating substrate facing said first insulating substrate with a predetermined distance therebetween;
> a common electrode formed on said second insulating substrate; and
> *a protrusion pattern formed on said common electrode in regions corresponding to said redundant data lines, and said protrusion pattern formed of an insulating material.*"

An example of the features of claim 11 is shown in FIG. 8 of the present application, in which a protrusion pattern 240 is formed on a common electrode 220 in a region corresponding to a redundant data line 172.

In this regard, the Examiner asserted "Sakurai discloses a liquid crystal display panel and repair method thereof where the redundant structure is shown". However, based upon Applicants' review, Sakurai does not disclose or suggest "redundant data lines formed on a the same layer as said pixel electrodes" as claimed. Also, none of the cited references discloses or suggests "a protrusion pattern formed on said common electrode in regions corresponding to said redundant data lines, and said protrusion pattern formed of an insulating material", as claimed. Thus, it is submitted that claim 11 is patentable over Matsuo, Sakurai, Hasegawa and Akiyama.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claim 11.

Claims 12-14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Matsuo, in view of Sakurai, further in view of U. S. Patent No. 5,739,880 issued to Suzuki, et al. ("Suzuki"), further in view of Hasegawa, further in view of Lee, and further in view of Akiyama. Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, as previously mentioned, in rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention*. Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed

invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, claims 12-14 are dependent from claim 11. As previously mentioned, claim 11 is believed to be patentable over Matsuo, Sakurai, Hasegawa and Akiyama. Particularly, none of these references discloses or suggests "redundant data lines formed on a the same layer as said pixel electrodes" and "a protrusion pattern formed on said common electrode in regions corresponding to said redundant data lines, and said protrusion pattern formed of an insulating material.".

Suzuki discloses sticking a shielding tape to a portion of the lower face of a lower substrate to prevent light leakage, but does not disclose or suggest "redundant data lines formed on a the same layer as said pixel electrodes" and "a protrusion pattern formed on said common electrode in regions corresponding to said redundant data lines, and said protrusion pattern formed of an insulating material", as recited in claim 11. Thus, it is submitted that claim 11 is patentable over Matsuo, Sakurai, Suzuki, Hasegawa and Akiyama. Claims 12-14 that are dependent from claim 11 would be also patentable at least for the same reason.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 12-14.

Claims 21 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 6,281,952 issued to Okamoto ("Okamoto") in view of U. S. Patent No. 6,433,852 issued to Sonoda, et al. ("Sonoda"), further in view of Hasegawa, further in view of Lee and

further in view of Akiyama. Applicants respectfully traverse this rejection for at least the following reasons.

First, as previously mentioned, Lee does not qualify as prior art under 35 U.S.C. §103(a) since the priority date of the present application antedates the filing date of Lee. Since the rejection is based on a reference that does not qualify as prior art, it is submitted that this rejection is improper. Hence, withdrawal of the rejection is respectfully requested.

Second, as previously mentioned, in rejecting a claim under 35 U.S.C. § 103, the PTO is required to *point out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention*. Nevertheless, the Examiner has merely asserted that the claimed invention would be clearly obvious without pointing out precisely where in an applied reference discloses a feature relied upon to defeat the patentability of a claimed invention. Accordingly, it is respectfully submitted that the Examiner has not met the burden and failed to establish a *prima facie* cases of obviousness to deny patentability to the claimed invention.

Third, independent claim 21 recites:

> 21. A liquid crystal display, comprising:
> a first insulating substrate;
> a transparent electrode formed on said first insulating substrate;
> a light-blocking layer formed on said transparent electrode and made of metal; and
> a protrusion portion made of an organic layer and aligned with the light-blocking layer.

In this regard, the Examiner admitted "Okamoto and Sonoda et al. combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and

transparent electrode on insulating substrate" (Office Action, Page 9). As previously mentioned, Hasegawa does not disclose or suggest "a light-blocking layer formed on said transparent electrode and made of metal" and "a protrusion portion made of an organic layer and aligned with the light-blocking layer", as claimed. Thus, none of the cited references teaches or suggests these claimed feature.

For these reasons, it is submitted that claim 21 is patentable over Okamoto Sonoda Hasegawa and Akiyama. Claim 22 that is dependent from claim 21 would be also patentable at least for the same reason. Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. §103(a) rejection of claims 21 and 22.

Other Matters

In this response, claims 1 and 7 have been amended for clarification purposes only. No amendment made herein was intended for narrowing the scope to avoid the cited references.

CONCLUSION

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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ATTACHMENT: (a) English translation of a certified copy of the priority documents
(b) Statement verifying accuracy of the translation

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